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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,080	04/08/2005	Jonathan Rennie Hughes	05-226	2564
20306 7590 01/29/2007 MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP 300 S. WACKER DRIVE 32ND FLOOR CHICAGO, IL 60606			EXAMINER MARTINEZ, JOSEPH P	
			ART UNIT	PAPER NUMBER
			2873	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/29/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/531,080

Applicant(s)

HUGHES ET AL.

Examiner

Joseph P. Martinez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings were received on 11-6-06. These drawings are acceptable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 9-13, 15, 16 and 19 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Fukushima et al. (5130830).

Re claim 1, Fukushima et al. teaches for example in fig. 8A, 9A, 20A and 23A, a method of controlling the switching of an optically addressable spatial light modulator (OASLM) having a photosensitive layer able to be driven in both a photosensitive direction and non-photosensitive direction (col. 5, ln. 51-63; col. 7, ln. 16-28 and col. 7, ln. 61-64), to a first surface of which a write light signal is applied (col. 4, ln. 67-68 to col. 5, ln. 1-8) and to a second surface of which a read light signal is applied (col. 5, ln. 8-12), the method comprising: applying a bipolar switching waveform to control electrodes of the OASLM during each write cycle such that the leading pulse of the waveform applies a voltage across the OASLM (col. 3, ln. 4-8) which is in the photosensitive

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direction (wherein the office interprets the $-V$ portion of fig. 8A, 9A, 20A and 23A to teach the claimed limitation) and the trailing pulse applies a voltage which is not in the photosensitive direction (wherein the office interprets the 2nd $+V$ portion of fig. 8A, 9A and 23A to teach the claimed limitation).

Re claim 6, Fukushima et al. teaches for example in fig. 8A, a method of controlling the switching of an optically addressable spatial light modulator (OASLM) having a photosensitive layer able to be driven in both a photosensitive direction and non-photosensitive direction (col. 5, ln. 51-63; col. 7, ln. 16-28 and col. 7, ln. 61-64), to a first surface of which a write light signal is applied (col. 4, ln. 67-68 to col. 5, ln. 1-8) and to a second surface of which a read light signal is applied (col. 5, ln. 8-12), the method comprising: applying a bipolar switching waveform to control electrodes of the OASLM (col. 3, ln. 4-8) during each write cycle, one of the pulses of the switching waveform causing illuminated areas of the OASLM to substantially switch from a first to a second state whilst causing substantially no switching of unilluminated areas and the other pulse of the bipolar waveform causing unilluminated areas of the OASLM to substantially switch from the second to the first state whilst causing substantially no switching of illuminated areas (col. 3, ln. 21-26).

Re claim 12, Fukushima et al. teaches for example in fig. 9A, a method of controlling the switching of an optically addressable spatial light modulator (OASLM) having a photosensitive layer able to be driven in both a photosensitive direction and

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non-photosensitive direction (col. 5, ln. 51-63; col. 7, ln. 16-28 and col. 7, ln. 61-64), to a first surface of which a write light signal is applied (col. 4, ln. 67-68 to col. 5, ln. 1-8) and to a second surface of which a read light signal is applied (col. 5, ln. 8-12), the method comprising: applying an asymmetric bipolar switching waveform (fig. 9A) to control electrodes of the OASLM during each write cycle (col. 3, ln. 4-8).

Re claim 19, Fukushima et al. teaches for example in fig. 6A, 6B, 8A, 9A, 20A and 23A, a display system comprising: an optically addressable spatial light modulator (OASLM) having a photosensitive layer able to be driven in both a photosensitive direction and non-photosensitive direction (col. 5, ln. 51-63; col. 7, ln. 16-28 and col. 7, ln. 61-64); means for applying a write light signal to a first surface of the OASLM (col. 4, ln. 67-68 to col. 5, ln. 1-8); means for applying a read light signal to a second surface of the OASLM (col. 5, ln. 8-12); and OASLM control means for applying a bipolar switching waveform to control electrodes of the OASLM during each write cycle such that in use the leading pulse of the waveform applies a voltage across the OASLM which is in the photosensitive direction (wherein the office interprets the $-V$ portion of fig. 8A, 9A, 20A and 23A to teach the claimed limitation) and the trailing pulse applies a voltage which is not in the photosensitive direction (wherein the office interprets the 2nd $+V$ portion of fig. 8A, 9A and 23A to teach the claimed limitation).

Re claim 2, Fukushima et al. further teaches for example, the shape and amplitude of the bipolar pulse are such that the trailing pulse causes switching between

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stable states (col. 3, 5-8 and ln. 16-26, wherein the office interprets the ability to control the pulse width and voltage in regards to the threshold value to teach the claimed limitation).

Re claim 3, Fukushima et al. further teaches for example, the shape and amplitude of the bipolar pulse are such that the leading pulse causes substantially no switching between stable states (col. 3, 5-8 and ln. 16-26, wherein the office interprets the ability to control the pulse width and voltage in regards to the threshold value to teach the claimed limitation).

Re claims 4 and 11, Fukushima et al. further teaches for example in fig. 9A, the switching waveform has an asymmetric shape.

Re claim 5, Fukushima et al. further teaches for example in fig. 9A, the duration of the leading pulse is less than that of the trailing pulse and/or the amplitude of the leading pulse is less than that of the trailing pulse.

Re claim 9, Fukushima et al. further teaches for example in fig. 8A, each bipolar switching waveform is preceded by a blanking pulse which switches the entire OASLM to either said first or second state (col. 6, ln. 64-68 to col. 78, ln. 1-3).

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Re claim 10, Fukushima et al. further teaches for example in fig. 9A, each bipolar switching waveform is not preceded by a blanking pulse (col. 7, ln. 49-60).

Re claim 13, Fukushima et al. further teaches for example in fig. 8A, the polarity of the leading pulse of the waveform is in the photosensitive direction (wherein the office interprets the $-V$ portion of fig. 8A, 9A, 20A and 23A to teach the claimed limitation).

Re claim 15, Fukushima et al. further teaches for example, a liquid crystal (FLC) having a response time (t) for switching between the first and second states ($+/-V_B$, $+/-V_D$) which depends upon the voltage ($+/-V_B$, $+/-V_D$) applied across the liquid crystal and the response time having a minimum value at a given voltage (wherein the office interprets 8A, 8D, 9A, 9C, 20A, 20C, 23A and 23C to describe the voltage pulse in regards to time across the SLM and voltage applied to the ferroelectric liquid crystal (FLC) to teach the claimed limitations).

Re claim 16, Fukushima et al. further teaches for example, the bipolar pulse switching waveform causes unilluminated areas to switch and does not switch illuminated areas (col. 7, ln. 16-28).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (5130830).

Re claims 7, 8 and 14, supra claims 6 and 12, respectively.

But, Fukushima et al. fails to explicitly teach the pulse amplitudes and widths are chosen to lie within that region of pulse amplitude/width space which is substantially bounded by: a) a line defining between 95% and 100% switching of illuminated areas to said first pulse of the bipolar waveform; and b) a line defining between 0% and 5% switching of unilluminated areas to said second pulse of the bipolar waveform; or the pulse amplitudes and widths are chosen to lie within that region of pulse amplitude/width space which is substantially bounded by: a) a line defining between 95% and 100% switching of unilluminated areas to said first pulse of the bipolar waveform; and b) a line defining between 0% and 5% switching of illuminated areas to said second pulse of the bipolar waveform; or the pulse width ratio between the leading pulse and the trailing pulse is at least 1:4.

However, Fukushima et al. teaches for example, the pulse width and voltage are variable (col. 3, ln. 6-8). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the pulse width and amplitudes,

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since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Fukushima et al. with varying the pulse width and amplitudes in order to provide improved operation speed, as taught by Fukushima et al. (col. 2, ln. 49-50).

Response to Arguments

Applicant's arguments filed 11-6-06 have been fully considered but they are not persuasive.

Re applicant's arguments on p. 8-9, wherein the applicant argues that the prior art does not disclose an OASLM that is polarized, have been considered, but are not persuasive. Fukushima et al. (5130830) explicitly teaches an OASLM that is polarized in col. 5, ln. 51-63; col. 7, ln. 16-28 and col. 7, ln. 61-64.

Re applicant's arguments on p. 9, wherein the applicant argues that the prior art does not disclose the described method for operating n OASLM device, have been considered, but are not persuasive. The method as described is not claimed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

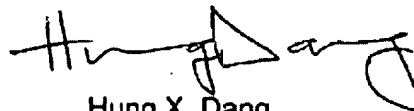
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
1-17-07

A handwritten signature in black ink, appearing to read 'Hung X. Dang', with a stylized flourish at the end.

Hung X. Dang
Primary Examiner
TC 2800